

ABSTRACT

A waveguide type optical module (100) having a good temperature-dependent wavelength demultiplexing characteristics is provided in which a temperature control element (1) is supported on a pedestal (5) inside a casing (11) and an optical waveguide (12) is mounted on the temperature control element (1). The temperature control element (1) includes a plate (2) having a heater or heat absorber (3) provided on the non-heating side thereof or buried therein. The pedestal (5) is provided to support the plate (2) mainly in contact with the non-heating side of the latter. The total area of contact of the pedestal (5) with the plate (2) including the area of contact with the heater or heat absorber (3) is set to over 30% of the area of the non-heating side of the plate (2) and the sum ($Ra1 + Ra2$) of the surface roughness ($Ra1$) of the pedestal (5) and those of both the plate (2) and heater (3) is set to over $0.05\ \mu\text{m}$. The present invention also provides a temperature controller and temperature control element, whose plate-surface temperature distribution is highly homogeneous, for use in the waveguide type optical module (100).